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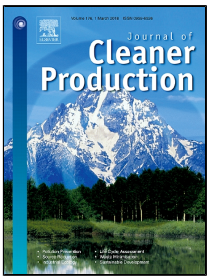

Preparation of biomass pigments and dyeing based on bioconversion

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Preparation of biomass pigments and dyeing based on bioconversion

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A B S T R A C T

Biomass pigments were considered as prospective alternatives to conventional synthetic dyestuffs. In this paper, biocolorants were prepared from tea polyphenols (TP) and were applied in dyeing. Crude enzyme generated by *Aspergillus niger* was employed to convert tea polyphenols as precursor into pigments via bioconversion, and simultaneously the dyeing of fabrics was achieved in this process. This work demonstrated that pigments prepared were able to dye fabrics with admirable color fastness and meet application requirements. The bio-pigments can be obtained from low-cost reproducible natural resource, tea stalk, which is a kind of tea residual waste. Dyeing with biomass pigments based on bioconversion was presented in this research in which no environmentally hazardous additive was employed to improve dye-uptake and fixation. Therefore, this innovative dyeing technology is a cleaner production method and the dyed fabrics can be categorized as ecological textiles.

Keywords: Biomass pigment, Bioconversion, Dyeing, Crude enzyme, Cleaner production

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